Market Analysis and Planning Services (MAPS)

U.S. Information Services Industry-Specific Markets 1987-1992

"Other Industry" Sector

INPUT®

1280 Villa Street, Mountain View, CA 94041 (415) 961-3300

OCTOBER 1987

U.S. INFORMATION SERVICES INDUSTRY-SPECIFIC MARKETS 1987-1992

"OTHER INDUSTRY" SECTOR

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1280 Villa Street, Mountain View, California 94041-1194 (415) 961-3300

Published by
INPUT
1280 Villa Street
Mountain View, CA 94041-1194
U.S.A.

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U.S. Information Services Industry-Specific Markets, 1987-1992– "Other Industry" Sector

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MSVA-OI • 372 • 1987

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I

Issues, Trends, and Events

I

Issues, Trends, and Events

A

Definitions and Applications

INPUT divides the "Other Industries" market into six major segments, listed alphabetically:

- Agriculture, Forestry, Fishing
- Automotive Services
- Construction
- Hotel/Motel/Lodging
- Not-for-Profit/Membership Organizations
- Recreation/Entertainment

Exhibit I-1 lists the Other Industries the corresponding Standard Industrial Classification (SIC) Codes for each major segment. A detailed definition of each segment follows.

- Agriculture includes grain, fruit growers, produce and livestock farms, farm services (except veterinary services), forestry, commercial fishing, and hunting and trapping enterprises.

- Automotive services includes automobile rental agencies as well as all types of automobile repair services.

- Construction includes general contractors, specialists in highway and heavy construction, specialized contractors (plumbing, electrical, heating/ventilation/air conditioning, bricklaying, paperhanging, structural steel erecting, and glass and glazing work).

- Hotel/Motel/Lodging includes lodging chains, inns, resorts, trailer camps, and rooming houses. Restaurants are excluded since they are covered under the retail distribution sector.

- Not-for-profit and membership organizations include non-profit philanthropic organizations, industry associations, professional associations,

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and membership clubs. Specific examples of non-profit organizations include museums, art galleries, and botanical and biological gardens.

- Recreation and entertainment includes theaters and drive-in theaters, sports, amusement parks, sports membership clubs, rentals of sports and camping equipment, and motion pictures and television production.

EXHIBIT I-1

"OTHER INDUSTRY" SECTOR

INDUSTRY SEGMENT	TWO-DIGIT SIC CODES INCLUDED
Agriculture, Forestry, Fishing	01 through 09
Automotive Services	75
Construction	15, 16, 17
Hotel/Motel/Lodging	70
Not-for-Profit/Membership Organizations	84, 86
Recreation/Entertainment	78, 79

B

Issues

1. Agriculture

U.S. government statistics show 2.2 million farms, 3,200 commercial foresters, and 4,000 commercial fisheries.

As of December 1986, approximately 3.9 million persons were employed in agriculture (2.7 million), forestry (0.9 million), and commercial fishing (0.3 million).
In 1982, 27,800 farms were considered large (sales were greater than $500,000) compared to 11,400 large farms in 1974.

- In 1986, large-scale farms controlled more than 10% of farm land and 33% of the value of U.S. farm production.

- Thirty-seven percent of large-scale farms are corporations; however, about 95% of farm corporations are family held.

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Key issues for the agricultural sector, summarized in Exhibit I-2, primarily macroeconomic ones, are generally beyond farmers' control. High grain prices, zooming prices for farm land, and the prospect of a worldwide grain shortage in the mid-1970s led to the entry of more than 1 million new farmers. Unfortunately, the situation changed drastically, and 650,000 U.S. farmers have since "called it quits." Since the late 1970s, prices for farm commodities have fallen dramatically. Surviving farmers have become financially conservative. Those farmers showing a profit have used some of their profits to reduce the high level of debt for farmland and machinery. Others continue to eke out an existence. The decline in the U.S. dollar against foreign currencies has made it more difficult to sell surplus agricultural and livestock commodities overseas.

EXHIBIT I-2

AGRICULTURAL SEGMENT ISSUES

- Mid-1970s Boom Did Not Continue
- Continued High Farm Debt
- U.S. Dollar Decline
- Best Prospects Cannot Pay for Food

- Furthermore, the currencies of America's major agricultural competitors–Canada, Australia, and Argentina–have fallen more than the dollar, making their products relatively cheaper abroad than U.S. agricultural products.

- The best customers for surplus grain, the third world nations, are heavily debt-ridden and cannot pay for agricultural commodities.

2. Automotive Services

Automotive services includes automobile dealers and independent repair, parking, and automobile rental. In 1986, automobile services employed 975,000 persons, and Americans spent $28.5 billion for automobile repairs, $14.3 billion for automobile and truck rentals, and $2.6 billion for automobile parking.

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Automobile dealers see increasing importance of automobile maintenance services as key components of customer satisfaction.

- Auto service vendors are looking for ways to keep their existing customers and inexpensively prospect for new customers.

Under-the-hood technology is increasing faster than the ability of service technicians to keep up with it. Manufacturers have developed the following products:

- Ford Motor Company and Hewlett-Packard Company are developing a computer-controlled diagnostic system, called the Service Bay Diagnostic System (SBDS), which will link a vehicle's on-board computer with sophisticated diagnostic equipment.

- Chrysler Motors is developing hand-held service computers to read information from the automobile's on-board computer.

- General Motors, through its Buick Division's Computerized Automotive Maintenance System (CAMS), has developed personal computer-based diagnostic equipment, installed at 1,200 dealers as of December 1986. Plans call for the CAMS System to be used throughout General Motors.

As a result of increased competition and more monitoring by insurance companies, owners of auto body shops must become more efficient at estimating. Furthermore, new entrants and increased price competition among automobile rental agencies have sparked the drive for more rapid and convenient auto reservation systems. These issues are summarized in Exhibit I-3.

EXHIBIT I-3

AUTOMOTIVE SERVICES SEGMENT ISSUES

- Auto Dealers See Value of Service
- Faster Changes in Automotive Technology
- More Competition in Auto Rental Market

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3. Construction

The construction segment is divided into four subsegments:

- Office
- Multi-family residential (apartments, hotels, motels, dormitories)
- Single-family residential
- Heavy construction and industrial

The markets for construction are diverse and include:

- Industrial
- Manufacturing buildings
- Process plants
- Offices
- Retail stores
- Educational institutions
- Hospitals and clinics
- Apartments
- Power plants
- Airports
- Highways and bridges
- Waste treatment
- Waterworks
- River, harbor, and flood control projects

Construction revenues range from nine percent to 16 percent of U.S. GNP while the construction industry employs about five percent of the total labor force. In 1985, 1.5 million organizations, employing about 7.1 million individuals, were engaged in construction services. Furthermore, labor turnover is high. Less than 1% of construction firms have receipts of greater than $5 million, but account for nearly 35% of gross income and about 23% of total employment.

Interest rates profoundly influence the construction market, especially the residential market segment. After six years of double-digit interest rates, lower interest rates resulted in a "mini" residential construction boom. Changes in the federal tax law have accelerated purchases of residential units, whether single-family or multi-family.

Overall, the value of 1987 heavy construction and nonresidential building construction is expected to decline 7% and 4%, respectively. Falling oil prices have adversely affected non- residential construction in Texas, Oklahoma, Arkansas, and Louisiana, resulting in a 26% decline. Changes in federal tax laws for real estate partnerships have also reduced non-residential construction. Only construction of dams/waterworks/sewerage, schools, hospitals, and warehouses is expected to increase in 1987. Total 1987 U.S. construction value is forecast at $143.5 billion, down seven percent from $153.9 billion in 1986.

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The keys to successful construction company management include: planning, designing, estimating, negotiating, purchasing, scheduling, expediting, reviewing, and controlling.

- Cost control in construction is everything, and covers manpower, materials, machinery, and the interest expense for the funds used to finance construction.
- Obstacles to cost control and effective scheduling include the transitory nature of project-oriented construction organizations, high employee turnover, shipping delays for key products, funding snags, and inclement weather.
- Construction firms' project-oriented "tough guy mentality" has generally impeded the adoption of computer-based project management techniques.

Construction segment issues are summarized in Exhibit I-4.

EXHIBIT I-4

CONSTRUCTION SEGMENT ISSUES

- Cost Control
- Interest Rates
- Impact of Falling Oil Prices
- Firms' "Project-Oriented" Mentality

4. Hotel/Motel/Lodging

The U.S. lodging business had 1986 sales of $43.9 billion, an increase over 1985 sales of $41.8 billion. Hotels and motels employed 1.4 million persons in 1986. While there are 45,000 lodging properties in the U.S., only 3,000 have more than 200 rooms. Chain operations account for 31% of total U.S. properties but 69% of the rooms. Business travellers are the industry mainstay and represent 40% of the total U.S. lodging industry. Tourists account for 32%, government officials represent 5%, conference participants account for 18%, and others represent the remaining 5% of the U.S. hotel/motel industry. By 1990, there will be a total of

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3 million hotel rooms in the U.S. hosting, on an average day, some 2.6 million guests.

Key industry issues, summarized in Exhibit I-5, are segmentation, service, and cost control.

- Larger chains are building new types of facilities, such as small suites or budget-oriented accommodations, to serve more travellers.
- Better service is now seen as a key differentiator. Service improvements include better security and more convenient, easy-to-use, nationwide reservation systems.
- Since labor is the largest expense, lodging managers are spending for automation, improved monitoring of tasks, and improved communication between the housekeeping staff and the front desk.

EXHIBIT I-5

HOTEL/MOTEL/LODGING SEGMENT ISSUES

- Industry Mainstay: Business Travellers
- Keys: Segmentation, Service, and Cost Control
- Decreasing Occupancy Rates Due to Overbuilding

Building of new facilities in 1986 contributed to the decrease in occupancy rates from 69.0% in 1985 to 65.5% in 1986.

5. Not-For-Profit/Membership Organizations

According to the Washington, D.C.-based National Center for Charitable Statistics in 1986, 1.2 million organizations held non-profit status and employed 2.1 million persons. However, the statistic is subject to the following caveats: (a) Organizations with income of less than $5,000 are not counted; (b) of the total, 388,000 are religious groups. 25,000 groups have unrelated business income, testing IRS guidelines for non-profit organizations; (c) the statistic includes private non-profit universities and

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private non-profit hospitals; and (d) financial data for the largest universities and hospitals skews results for non-profit organizations. The net result is that there are approximately 500,000 associations encompassing trade, local, professional, and charitable groups.

According to the American Society of Association Executives, in 1986 there were 20,000 sizable national associations, compared with 19,000 the previous year; the total number is growing 5 percent per year. Some not-for-profit organizations are offering products or services which compete directly with the "for profit" sector. "For profit" companies are objecting since they pay income taxes while the non-profit organizations do not and can offer the same product or service at a reduced price or receive preferred mailing rates. Examples are widespread and include associations' publishing advertising-based magazines and selling computer software and hardware to members. Better known tax-exempt organizations include Blue Cross/Blue Shield, Underwriters Laboratories, and the National Geographic Society.

Non-profit organizations are increasingly recruiting professional managers, generally with financial or general management experience.

Due to increased legal liability resulting from product, employment, and standards-setting/certification activities of some associations, obtaining liability insurance has become increasingly difficult.

Key issues for this segment are shown in Exhibit I-6.

EXHIBIT I-6

NOT-FOR-PROFIT/MEMBERSHIP ORGANIZATION ISSUES

- Some Non-Profits Competing with For-Profit Businesses
- Non-Profit Associations Need Professional Managers
- Difficult to Obtain Liability Insurance

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6. Recreation/Entertainment

Recreation/entertainment is a $37.3 billion business and includes 173,000 organizations employing 1.4 million persons. Recreation/entertainment includes:

- Professional sports events
- Stage plays, concerts, and movies
- Golf courses and amusement parks
- Gambling
- Golf/tennis/swim/racquet/country/yacht/aviation/ hunt/gun/fishing/ riding clubs
- Agricultural fairs and expositions
- Rental of specialized sports equipment
- Sports instruction

Leisure activities are an important part of our lifestyle. They are not diminishing; in fact, revenue growth through 1991 of the movie business is forecast at 3.5% per year, prerecorded music revenues should grow at 3% per annum, and cable television will be installed in more than 50% of U.S. households in 1987.

Key issues, shown in Exhibit I-7, are business related and include:

- Recruiting and retaining employees in a typically low-paying business
- Differentiating the services offered
- Dealing with the proliferation of franchises in an industry of generally family-owned, single location enterprises
- Improving overall business management and reporting

EXHIBIT I-7

RECREATION/ENTERTAINMENT SEGMENT ISSUES

- Recruiting and Retaining Employees
- Differentiating Services
- Dealing with Franchises
- Improving Business Management and Reporting

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C

Trends in Agriculture

U.S. farm real estate debt is decreasing from its 1986 level of $92 billion.

Continued political pressure in Washington will force continued decreases in government price supports for many commodities. Grain prices are expected to decrease in the short term, then increase within three to five years as farmers grow different crops or improved strains of crops. Political pressure will slow the rate of technological change and delay the demise of moderate-sized farms.

Also, large farms' substantial economic advantages over smaller farms will likely increase. Large segments of agriculture will become vertically integrated because of efficiency, consumer demand, technological forces, and greater need for control of marketing. Major commercial payoffs of biotechnology or robotics and automation research are not expected until the early- to mid-1990s. Robots are being developed to identify and pick ripe fruit; other robots are being designed to feed cows, hook them to the milking machine, automatically milk the cow, then clean the machine.

D

Trends in Automotive Services

Automobile dealers see increasing importance of automobile maintenance services as key components of customer satisfaction. Auto service vendors are looking for ways to keep their existing customers and inexpensively prospect for new customers. As such, marketing data bases will become an increasingly important application.

Heavy competition in auto rental rates will continue as more rental agencies move from expensive main airport terminals to nearby locations. Hertz, Avis, and Budget will be forced to offer rates competitive with the smaller firms. Systems for reservations, tracking maintenance and cleaning time on each auto, and improved radio communications contribute to bottom line results.

E

Trends in Construction

In order to keep projects "on time and under budget," minicomputers and microcomputers are being used on job sites, especially for very large projects. Large construction firms are establishing interfaces between architects' computer-aided drafting and design (CADD) systems and their systems to begin to develop the bill of materials for projects. Full-scale implementation of this approach is years away until the current debate over the "liability issue of implied warranty of the architect" is resolved.

Firms are demanding more timely payroll and job costing information so that top management can be alerted promptly of project cost overruns or slipped schedules. To accomplish this, decentralized minicomputer-based operations are replacing batch processing-oriented mainframes at

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regional offices and key job sites. Additional savings have resulted from the reduction in the hardware and software support staff.

Users are reaching the limits to the power of microcomputers and are now buying minicomputers as part of their efforts to re-centralize DP operations.

The role of DP in construction organizations will evolve from a direct one to more of a coordinating role, with end users doing more system definition on computer equipment located in work areas. However, IS will be the focal point for combining voice and data information. Most construction industry executives admit that, to date, their firms have not integrated IS into the company planning process. With the array of hardware and software available, managers are challenged to determine how the computer system, as a construction tool, enhances company profitability.

Project related data generally resides at the job site; corporate reporting data is transmitted to the computer at the headquarters.

Large construction firms use different approaches to purchasing software; some firms prefer to purchase off-the-shelf while others prefer to develop application in-house applications. Some large companies purchase micro-based application software (spreadsheets, word processing, scheduling, marketing), but develop programs in-house for the business and engineering part of the business.

Of 142,000 National Association of Home Builders (NAHB) members, 46,000 are builders. As of August 1986, only 25% of this number had computers; however, the proportion is expected to rise rapidly to 75% by 1989.

F

Trends in Hotel/Motel/Lodging

According to one industry watcher, consolidation will reduce the number of lodging chains from 65 to approximately 40 by 1988. While recreational travel fluctuates widely, hotels are aggressively pursuing business conventions and seminars to help actively utilize large, expensive facilities.

Key hotel/motel applications include: guest services, accounting and finance, information system management, environmental systems, employees and employee records, office automation, and communications.

Only 40% of hotels have an integrated hotel management system.

- An integrated hotel management system integrates property management, energy management, automatic temperature control, telecommunications, and fire and security systems modules.

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- The system purchase is justified on the basis of cost reduction, increased operating efficiency, enhanced customer service, and improved guest comfort.

- The most important system features, in decreasing order, are: linking fire safety modules to the integrated management system, permitting housekeeping staff members to report room status on a real-time basis to the front desk using a digital telephone as keypad, and integrating energy management and automatic temperature control with other hotel management systems.

Opportunities for vendors include: sales of marketing-oriented data bases, electronic locking systems (ELS), time-and-attendance systems, point-of-sale (POS) systems, and, especially, turnkey hotel management systems. Other vendor opportunities include: integrating information among existing systems, teleconferencing facilities, and hotel-based information services.

G

Trends in Not-for-Profit/ Membership Organizations

Dues pay for only 48% of the operating expenses of industry associations. Savvy organizations find creative ways to raise additional funds.

As organizations seek ways to raise funds, in-house computerization will increase. Applications include: mailing lists, marketing/demographic/ membership data, orders for reprints, merchandise inventories, convention management, monitoring investments and endowments, strategic planning, calendar management, and fund raising. Data base software is common to the above applications and, as such, will play a pivotal role in association management. More sophisticated users will demand custom programming beyond the basic capabilities of programs such as dBase III.

Not-for-profit/membership organizations, like for-profit businesses, are trying to develop integrated offices linking telephone communications, electronic mail, facsimile transmission, and word processing.

H

Trends in Recreation/ Entertainment

Professional sports teams are competing more for fans' entertainment dollars. Teams are taking bold steps to: attract top talent, relocate to growing cities, extend seasons and league revenues through longer seasons, and offer varied seating arrangements for fans. This is expensive!

As a result, teams are spending more for computers to better track player performance, team prospects, group and individual ticket sales, and promotional events held in conjunction with scheduled games.

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While new applications have been devised, basic team requirements for integrated accounting and financial software, airline scheduling, logistics management, videotape library management, and other basic applications continue. In summary, systems have been devised to aid all facets of sports team and event management.

Tailor-made accounting and project management software has been developed for stage plays and movie production. Integration of disparate applications software modules is the next challenge.

I

Factors Limiting Growth

Factors that have held back growth in the "other industry" information services market include:

- Operations-oriented, rather than strategic-oriented, senior management that emphasizes cost control as opposed to using information as a service differentiator.
- Wide fluctuations in revenues and profits in agricultural, mining, and construction businesses as a result of general economic health whipsaw annual spending for information products and services.
- Vendors of information services products do not offer integrated products, packaged individually so that the buyer can add one or two modules per year to complete a system. High entry system cost deters purchases.
- Unionization prevents upgrading of certain job classifications through automation.

The costs of serving rural populations may be greater than the benefits gained, especially in the agriculture sector. Farming is also characterized by relatively low sales volume compared to other vertical markets. Furthermore, farmers vary by geographic location and applications needed. Rural cultures are also slower to change and adapt new technology.

J

Factors Spurring Growth

Due to the diversity of the "Other Industry" sector, the factors spurring growth will be discussed separately for each segment.

1. Agriculture

The top priority for farmers is reducing costs in order to remain competitive. Medium-sized farms benefit from automated assistance in acreage utilization planning, purchasing, and cash flow modeling. Large agribusiness organizations can automate all aspects of their operations. Applications extend beyond financial ones to include logistics, fixed asset management, major customer data bases, and personnel records.

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The livestock segment is doing better than the grain and other crop segment. In the livestock segment, computerization is more appropriate and includes animal husbandry and production records.

The use of robotics will lower the cost of picking fruit. Currently, 30% of the retail price of a piece of fruit stems from the cost of picking it. Future machine-based fruit pickers will rely on a combination of machine vision, artificial intelligence, and mechanical arms.

Personal computers have not penetrated the agricultural market. Fewer than 10% of the country's 600,000 full-time farmers own personal computers, whereas 30% of non- agricultural businesses do.

Key segment applications include: animal health records, individual crop profit and loss analysis, parts inventory, equipment management, farm accounting, dairy system, breeding management, market and price analysis.

2. Automotive Services

The automotive services segment is driven by the high level of competition for customers, the need to offer convenience to customers, and the desire to differentiate its customer services. Key applications include: Inventory management, marketing information, employee records, employee productivity measurement and computation of wage bonuses, work in process monitoring, and job estimating.

3. Construction

Forces driving demand by the construction segment for information services include the realization by senior management that more business-like methods may be applied to managing what has been a "rough and tumble" business. While such variables as inclement weather, subcontractors with different skill levels, and delays in receipt of building materials, construction managers now realize that the overall project must be scheduled and include financial controls. Increased competition also spurs demand for computers, software, and other information services. Rapid acquisition of microcomputers by the construction industry presents challenges and opportunities for vendors of local area networks (LANs), multi-user systems and construction industry application software.

4. Hotel/Motel/Lodging

The lodging industry is driven by a need to attract more customers and cultivate chain loyalty. Since the market is nearly saturated, growth for one firm will be at the expense of another firm. Automation of labor

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intensive tasks such as housekeeping or food and beverage service and automation of such environmental factors as security, heating/ventilation/air conditioning and other areas of potential liability is a key driving force. Increased competition in highly competitive lodging and food/beverage markets drives demand for information services. Microcomputer-based lodging industry applications, especially those tailored for smaller hotels and motels, will spur sales of related information services.

5. Non-Profit/Membership Organizations

Fund-raising and improved service are key driving forces for non-profit organizations. Since non-profits' income from direct fees is not sufficient to cover expenses, there is tremendous pressure to raise funds through means outside the organization's principal activity or objective. Membership organizations are driven by the need to provide services and specific information and maintain member records.

Information service suppliers should concentrate on microcomputer-based software for small business management, employee information, list management, marketing information, reprint fulfillment and shipping, library operations, article reprint management, and management of endowments or investments.

6. Recreation/Entertainment

Recreation and entertainment is a big, varied business. Software and services must be tailored to meet specific market needs. Key applications include: event scheduling and management, tracking royalty payments, accounting and finance, ticket sales, measuring the effectiveness of special promotions, and logistics management. Since the industry is heavily dependent on consumer tastes and trends, software for analyzing consumer demographic information is necessary.

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II

Market Forecasts

II

Market Forecasts

A

Introduction

INPUT divides the "Other Industry" sector into six major segments, listed alphabetically:

- Agriculture, Forestry, Fishing
- Automotive Services
- Construction
- Hotel/Motel/Lodging
- Not-for-Profit/Membership Organizations
- Recreation/Entertainment

The Standard Industrial Classification (SIC) Codes for each major segment and a detailed definition of each segment were listed in Exhibit I-1.

Exhibit II-1 summarizes the number of U.S. firms, number of employees, and estimated 1986 receipts for segments in the "Other Industry" sector. Construction produces the most revenues and has the greatest number of employees. Agriculture has the greatest number of business enterprises. Not-for-profit/membership organizations account for nearly twice the revenue of hotel/motel/lodging or automotive services.

Demand for "other industry" applications will grow 15% annually through 1991, increasing from $774 million to $1,602 million. Exhibit II-2 shows user expenditures through 1991 in the "other industry" sector.

It is tempting to say that firms within each market segment have similar requirements which can be nicely met with off-the-shelf software. In fact, the data processing needs of firms within each segment differ widely, based primarily on the size of the enterprise.

- For example, large agribusiness ventures need sophisticated software to manage all aspects of a near-billion dollar business while a family farm needs rudimentary microcomputer-based farm managment software.

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- Similarly, the needs of small construction firms differ significantly from those of multi-national project design and construction management firms.
- As a result, successful vendors to these markets are able to provide custom software or modify off-the-shelf software to fit the client's need.

EXHIBIT II-1

"OTHER INDUSTRY" SECTOR NUMBER OF FIRMS, EMPLOYEES, AND 1986 REVENUES

INDUSTRY SECTOR	NUMBER OF FIRMS	NUMBER OF EMPLOYEES	1986 INDUSTRY REVENUES* (Billions of Dollars)
Agriculture	2,200,000	2,700,000	89.3
Forestry	3,200	900,000	1.2
Fisheries	4,000	300,000	2.4
Automotive Services	140,000	975,000	42.4
Construction	1,500,000	7,100,000	153.9
Hotel/Motel/Lodging	45,000	1,400,000	43.9
Not-for-Profit/Membership Organizations	1,2000,000	2,100,000	79.3
Recreation/Entertainment	960,000	1,400,000	37.3

* INPUT Estimates

Source: Based on data in 1986 Statistical Abstract of the United States

Distribution channel usage plays a subtle role. Owners of small farms, small and medium automobile repair shops, small lodging operations, small construction firms, and small recreation/entertainment enterprises are more likely to begin their search for computer-based solutions at a local computer store. It makes little sense for a manufacturer's direct

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sales force to sell solutions available for microcomputers when only minicomputers and mainframes are most efficiently sold directly by the vendor.

EXHIBIT II-2

"OTHER INDUSTRY" SECTOR
USER EXPENDITURE FORECAST, 1987 - 1992

Segmentation By Delivery Mode	1986 ($M)	86-87 GROWTH (Percent)	1987 ($M)	1988 ($M)	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	AAGR 87-92 (Percent)
Processing Services									
Remote Computing	561	14	637	713	792	871	950	1032	10
Facility Management	10	10	11	12	13	15	16	18	10
Total Processing Services	571	13	648	725	805	886	996	1050	10
Applications Software									
Mainframe/Mini	88	36	120	155	190	226	262	299	20
Micro	9	56	14	21	32	46	66	93	46
Total Applications Software	97	38	134	176	222	272	328	392	24
Turnkey Systems	112	17	131	151	170	189	206	221	11
Sector Total	780	17	913	1052	1197	1347	1500	1663	13

B

Demographic Forecast

As a result of economic conditions, the number of farms will decline between 1986 and 1991. Government subsidies to farms are expected to lessen or change significantly, causing many farms to consolidate of close. Changing economies of scale will force consolidation of some small farms and medium-sized enterprises. The consolidated farms will be located near one another to share expensive tools and equipment.

The number of automotive services businesses will increase. Auto service providers are moving toward increased specialization, such as oil-filter-lube operations; brake shops; muffler shops; and auto detailing shops. The creation of suburban "auto service centers" is driving the growth of auto service enterprises. These suburban auto centers, with longer operating hours, are necessary to successfully serve two-income families who have less time available to do necessary chores.

The number of construction enterprises will increase slightly overall, owing to more foreign enterprises and more highly specialized subcontractors. Overall long-term prospects for residential, industrial, government, and commercial construction are good.

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Long-term prospects for hotel/motel/lodging are good, since discretionary income is rising and people generally have more paid vacation time for travel. The trend toward diversification in property types will continue, although at a slower pace.

The number of large non-profit/membership organizations will increase approximately 5% per year during the forecast period.

The number of motion picture theaters will decrease slightly during the forecast period. The increase in videocassette rentals will have the greatest impact on "non-first run" theaters in large and medium cities. The number of other amusement-based businesses will decrease slightly as a result of more mergers and acquisitions; surviving organizations will be good prospects for increased computerization.

C

Agriculture	Although there are about 2.2 million farms, expenditures for software and services by this segment accounts for approximately 15% of total "Other Industry" information services expenditures. Information services spending by forestry and fishery firms represent 0.5% and 0.8%, respectively, of total sector spending. Information services spending by the 100 largest agribusiness enterprises represents 65% of total agriculture segment spending for information services.

D

Automotive Services	Information services expenditures by the 140,000 auto service organizations account for 2% of total "Other Industry" sector IS expenditures. Information services spending by the largest auto repair and maintenance companies represents 50% of total auto services segment spending for information services.

E

Construction	Information services spending by the 1.5 million construction enterprises accounts for 65% of total "Other Industry" IS spending. Spending by the 100 largest construction firms accounts for 45% of total construction IS spending.

F

Hotel/Motel/Lodging	IS spending by the 45,000 hotel/motel firms represents 7.5% of total sector IS spending while IS spending by the largest 100 lodging chains represents 60% of all lodging firms' IS expenditures.

G

Not-for-Profit/ Membership Organizations	IS spending by the 1.2 million non-profit/membership organizations represents 6.1% of total sector IS spending. An estimated 8% of all non-profit organizations receive donated computer hardware. Apple Computer's "Apple Education Foundation" actively donates Macintosh hardware to qualifying organizations. The largest 100 non-profit/mem-

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bership organizations account for 35% of total non-profit/membership organization IS spending.

H

Recreation/ Entertainment

IS spending by the 960,000 recreation/entertainment firms accounts for 2.5% of total sector IS spending, while IS spending by the largest 100 recreation/entertainment firms represents 30% of total recreation/entertainment firm IS expenditures.

I

Delivery Mode Forecasts

1. Processing Services

Expenditures for processing/network services, which represent more than 70% of "Other Industry" IS expenditures, are expected to grow 10% annually through 1992. The heaviest users of processing/network services are concentrated in just four vertical markets – lodging, automobile rentals, agriculture, and non-profit organizations.

- Major processing services for the lodging industry systems are provided by American Airlines' (SABRE), Best Western, Ramada Inns, Hilton Hotels, and Sheraton Hotels.
- The largest processing services for auto rental companies include SABRE, Hertz, Avis, Budget, and National who also provide services for smaller agencies.
- Many networks serve the agricultural community, chiefly ones for commodity and crop price reporting, accounting, weather data, and federal government regulations. AgNET and AgriStar are the best known on-line networks.
- Industry associations, especially those located in Washington D.C. and which provide lobbying efforts, use Legi-Slate, Washington Alert Service, or Information for Public Affairs to monitor legislation.

Despite inroads by minis and micros, demand for processing services is expected to increase due to the timeliness and breadth of information required by this sector. CD-ROM- based updates may have a slight negative impact on the growth rate but, in general, timeliness and completeness of information spurs demand for processing/ network services.

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INPUT divides industry segment usage of processing/network services into:

- Lodging: 45%
- Automobile rentals: 25%
- Agriculture: 15%
- Non-profit organizations: 10%
- Others: 5%

2. Turnkey Systems

Turnkey systems sales account for slightly more than 14% of total 1986 industry sector user expenditures. Due to an increase in computer users' skills, sales of turnkey systems will increase at 11% through the forecast period, versus overall sector growth of 13%. Turnkey sales continue to account for a relatively large proportion of sector user expenditures. Turnkey systems' relative strength is attributable to the realities of selling to vertical markets with technically unsophisticated buyers.

- Buyers in these industries do not want the steep technical "learning curve" associated with the purchase of computers; they would rather tend to their primary business responsibilities.

- It is easier for the sales representative to sell a complete system and follow-on maintenance services than to sell the hardware or software separately.

- Turnkey systems represent solutions for applications which do not have to be integrated with, say, an organization's main accounting system. Most office-based applications in agriculture, auto services, construction, lodging, non-profit organizations, and recreation/entertainment are effectively handled with a turnkey system.

3. Applications Software

Applications software accounts for 12% of total 1986 user expenditures in the "Other Industry" sector and will increase at an overall 24% annual rate through 1992. The disparity between expenditures for mainframe/minicomputer and microcomputer applications software can be explained starting with the installed hardware at the largest organizations.

- Recall that the largest organizations represent the greatest part of user expenditures in each of the six vertical segments.

- According to INPUT's research, the largest organizations in each segment have purchased mainframes and minicomputers to a far greater extent than non-turnkey system microcomputers.

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Furthermore, while many vendors sell microcomputer applications software to these six industry segments, no vendor is large enough to significantly influence segment revenues. Note, too, that none of the leading 200 Information Services vendors sell to these particular industry segments.

Steep discounts for microcomputer software or donated hardware for non-profit organizations and key reference accounts in these industries yield relatively low dollar sales.

Key applications by sector include:

- Agricultural: Crop, dairy, & feed management; accounting; reporting; real estate analysis; grain inventory management; and crop broker management.

- Automobile services: Labor reporting; parts inventory; accounting; payroll; rental management; and preventive maintenance.

- Construction: Project management & accounting; payroll; job costing; subcontract management; purchasing; government reporting; service contracts; equipment cost; progress billing; bid analysis; and concrete estimating.

- Hotel/Motel/Lodging: Reservations; accounting; front office/ night auditor; staffing; payroll; food and beverage control; guest history; telephone call accounting; room rate analysis; sales management; groups and conventions management; and purchasing.

- Non-profits: Grant management; payroll; accounting; mail list management; exhibition management; membership management/renewal billing; contribution reporting; publication inventory; donor information; ID cards; and long-range planning.

- Recreation/Entertainment: Accounting; payroll; ticket sales management; inventory; frequency of use; cart rental and service management; stamp & coin collection inventory; marina and yacht club management; league management; scouting and player rating; and weight/fitness/ performance evaluation.

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III

Competitive Developments

III

Competitive Developments

A

Introduction

Competition in the "Other Industry" vertical sector is relatively intense. However, the major effort is convincing users in low-margin businesses to make the initial investment in computers.

B

Acquisitions

Following a review of INPUT's mergers and acquisitions data base back to 1984, no IS vendors merged or were acquired in the "Other Industry" sector.

C

Vendors Entering/ Exiting the "Other Industries" Market

No major IS vendors were identified who entered or exited the "Other Industry" sector between January 1984 and September 1987.

D

Vendor Profiles– Agricultural Segment

1. Pioneer Hy-bred International; Des Moines, Iowa

- Products/Services: Applications Software
- Revenue Range: $10 - $15 million

2. Harris Technical Systems; Omaha, Nebraska

- Products/Services: Applications Software
- Revenue Range: $1 - $3 million

E

Vendor Profiles– Automotive Services Segment

1. Automotive Computer Group; Clearwater, Florida

- Products/Services: Applications Software
- Markets Served: Auto Repair Shops
- Revenue Range: $1 - $3 million

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2. Other Vendors:

- Repair Shop Systems; San Rafael, CA
- Softkey Software Products; Toronto, Ontario

F

Vendor Profiles–Construction Segment

1. Timberline Systems; Beaverton, OR

- Products/Services: Applications Software
- Revenue Range: $10 - $15 million

2. Concord Management Systems; Tampa, FL

- Products/Services: Applications Software
- Revenue Range: $10 - $15 million

3. TOM Software, Inc.; Seattle, WA

- Products/Services: Applications Software
- Revenue Range: $3 - $5 million

G

Vendor Profiles–Hotel/Motel/Lodging

1. EECO Computer, Inc.; Santa Ana, CA

- Products/Services: Applications Software
- Revenue Range: $10 - $15 million

2. Computerized Lodging Systems, Inc; Long Beach, CA

- Products/Services: Applications Software
- Revenue Range: $3 - $5 million

3. Hotel Information Systems; Pleasant Hill, CA

- Products/Services: Application Software
- Revenue Range: $3 - $5 million

H

Vendor Profiles–Not-for-Profit/Membership Organizations Segment

1. TOM Software, Inc.; Seattle, WA

- Products/Services: Applications Software
- Revenue Range: $3 - $5 million

2. Smith, Abbott & Co., Inc.; Baltimore, MD

- Products/Services: Applications Software
- Revenue Range: $3 - $5 million

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3. Quodata Corp.; Hartford, CT

- Products/Services: Applications Software
- Revenue Range: $3 - $5 million

I

Vendor Profiles–Recreation/Entertainment Segment

1. BetaData Systems, Inc.; Tucson, AZ

- Products/Services: Applications Software
- Revenue Range: $1 - $3 million

2. ADS Software, Inc.; Roanoke, VA

- Products/Services: Applications Software
- Revenue Range: $1 - $3 million

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IV

Information Systems Outlook

IV

Information Systems Outlook

A

Major Issues

1. Driving Forces

Exhibit IV-1 lists driving forces common to all sectors within the "Other Industry" market segment.

EXHIBIT IV-1

"OTHER INDUSTRY" DRIVING FORCES

- Tax Reform
- Decentralized Business Operations
- Management Tools and Techniques Required
- Employee Training and Retention

- Tax reform is changing accounting policies and procedures, forcing IS departments to modify existing accounting systems to the new requirements.
- Advancing network technology and more powerful personal computers are fueling the drive toward decentralized systems in all industries.
- To a lesser extent, senior management realizes the need for more professional tools and techniques to manage increasingly complex businesses.

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- Many organizations within the "Other Industry" sector share business characteristics with service businesses. For example, the success of non-profit organizations,leisure/recreation, lodging, and automotive services are dependent on the training and skill level of employees. As a result, employee training and retention are more important than in the past.

Key segment specific driving forces, which are covered in detail in Section I, are: (a) Agriculture: Cost reduction; (b) Automotive Services: Increased competition; (c) Construction: Professional management required; (d) Lodging: Increased competition; (e) Non-Profit Organizations: Provide more services; and (f) Recreation/Entertainment: Professional management required.

2. Issues and Objectives

Exhibit IV-2 lists fundamental IS department issues and objectives common to all sectors within the "Other Industry" market segment. The role of IS management will change from that of guru to one of facilitator, supporting end-user computing.

EXHIBIT IV-2

"OTHER INDUSTRY" ISSUES AND OBJECTIVES

- End-User Computing
- Connectivity and Integration
- Education, Training, and Support
- Technology Directions

- Connected hardware and integrated software facilitates information dissemination throughout an organization or between organizations. Integrated software makes data available to many applications without costly and time-consuming duplicated data entry.

- Non-hardware and system software issues will dominate users' needs when purchasing a system or applications software. Vendors must provide better education, training, and support to enable users to gain maximum productivity from their systems.

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- Managers must be versed in general developments in technology to enable their company to gain maximum benefit from new products and services.

3. Impact of New Technology

a. Agriculture

According to Dun's Business Monthly, three to five percent of small and medium farms will cease operations for the next four to five years. Automated systems will play a major role in marketing and operations strategies. Just as automated systems are far more cost-effective for large corporations than for small ones, automated systems will have a greater effect on large agribusinesses than small farms.

b. Automotive Services

Communications technology has provided the foundation for on-line reservations systems. New software helps auto services firms manage vehicle maintenance, repeat customers, customer complaints, repair procedures, and sophisticated diagnostics.

c. Construction

Overall, computer technology is slow to take hold in the construction industry due to the unusual nature of construction projects; no construction site is permanent and the
organization of labor changes constantly as subcontractors come and go.

Automation of field operations is the area of most rapid IS development in construction. Previously, construction IS consisted almost entirely of accounting and office applications. Project management and integrated software now represent key construction applications.

Integrated applications include: computer aided design and drafting (CADD) and estimating, cost accounting and project management, and bidding and materials management.

d. Hotel/Motel/Lodging

Video conferencing in the lodging sector has had two opposing but roughly balanced effects. Teleconferencing reduces long-distance business travel yet requires use of the local hotel to receive and transmit video and voice images. Property management systems act as information system hubs, tying disparate functions into one system. Electronic door locking systems reduce theft, significantly reduces the cost of rekeying room keys when keys are lost, and provides an audit trail of employees

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entering and leaving a guest's room. Energy management systems are essential for large lodging operations since a 10% reduction in energy costs translates into a substantial gain in pre-tax profit.

e. Not-for-Profit/Membership Organizations

While associations and non-profit organizations are typically small, their IS budgets are growing to reflect increasing computerization. IBM PC clones and inexpensive application software help to efficiently provide basic membership services. On-line databases support fundraising and mail list management applications.

f. Recreation/Entertainment

Point-of-sale (POS) and telecommunications technology enable faster reporting of sales and subsequent demographic analysis of movies. Scheduling applications help reduce the cost of movie production. Local area networks (LANs) link multi-site locations of recreation businesses, such as amusement halls and private clubs, enabling information to be assembled and analyzed in a more timely manner.

B

New Applications

One promising new application is that of data bases which integrate information from previously unlinked sources. Examples include weather and crop prices and customer profiles connected to auto/lodging reservation systems

Another new application is that of providing information on specific vertical industries to institutions serving them, such as commercial and savings banks, insurance companies, mortgage insurers and brokers, and suppliers of raw materials.

Microcomputer clone-based turnkey systems can automate repetitive manual tasks and provide management information in agriculture, construction, and the food and beverage portion of the lodging industry, among others.

Improved applications software for benefits management, subcontractor management, project management, purchasing, equipment service and maintenance, "event" or exhibition management, and long-rage planning should be useful across all "Other Industry" sectors.

C

Budget Analysis

Personnel is by far the largest budget category, accounting for 44% of IS budget expenditures. Please see Exhibit IV-3.

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EXHIBIT IV-3

1986 BUDGET DISTRIBUTION AND 1986/87 CHANGES IN THE "OTHER INDUSTRY" SECTOR

BUDGET CATEGORY	1986 PERCENT OF U.S. BUDGET (Percent)	1986-87 EXPECTED BUDGET GROWTH (Percent)
Personnel	44.0	7.0
Mainframe Processors	13.0	7.0
Minicomputers	6.0	8.0
Microcomputers	6.0	17.0
Mass Storage Devices	4.0	10.0
Other Hardware	11.0	13.0
Total Hardware	40.0	11.0
Data Communications	4.0	10.0
External Software	4.6	22.0
Professional Services	1.4	8.0
Software Maintenance	1.5	19.0
Hardware Maintenance	1.5	22.0
Other	3.0	5.0
Total	100.0	10.0

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The next largest expenditure category is hardware, at around 20%. Mainframe systems account for 29% of hardware expenditures. Expenditures for microcomputers are the fastest growing item in the hardware portion of the IS budget.

"External software" and "hardware maintenance" are the fastest growing line items in the overall budget, each growing at 22%. "Software maintenance" is the second fastest growing item of the overall budget with a 19% growth rate.

Companies in the "Other Industry" sector developed 70% of all software in-house. They purchased the remainder as packaged software or had it developed outside. Please refer to Exhibit IV-4 for details. According to Exhibit IV-5, 60% of the programming staffs of "Other Industry" companies provide maintenance and enhancements to existing applications; the remaining 40% develop new applications software.

EXHIBIT IV-4

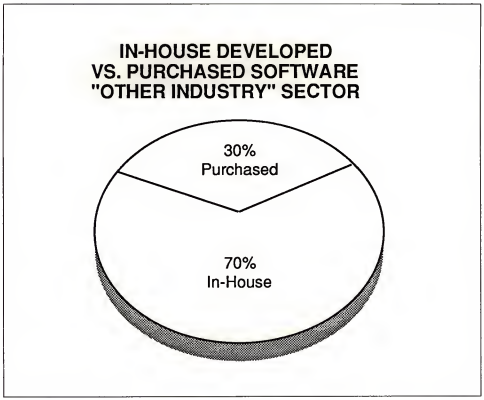

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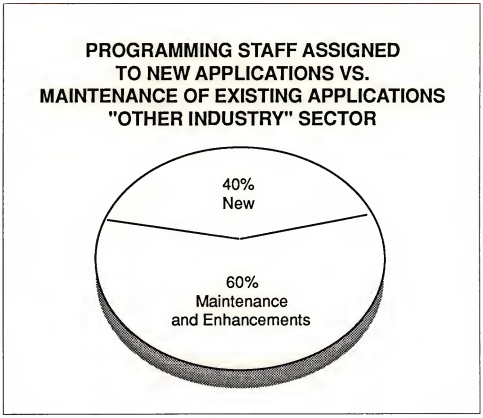
EXHIBIT IV-5



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V

Conclusions and Recommendations

V

Conclusions and Recommendations

The "Other Industry" sector is very large, diverse, and overall represents a good market opportunity for IS vendors.

The segments range from agriculture and construction to knowledge intensive service industries such as automotive repair and such creative enterprises as movie production.
Combined organization revenues for the six market sub-segments equalled nearly $450 billion in 1986. This sector is a good opportunity for IS vendors since the level of overall computerization is relatively low in nearly all segments. The major exception is the extensive processing networks used by the auto rental companies.

Vertical market applications software, especially single-user and multi-user microcomputer-based, is expected to grow much more rapidly than "Other Industry" delivery modes.

- Medium-size farms represent the best opportunity for sales to the agricultural segment since they have not been heavily penetrated and, overall, have reasonable prospects for success, given the industry's shakeout.

- Independent auto repair services could accommodate an easy-to-use microcomputer-based system for computing labor and inventory efficiency.

- Potential construction applications include:
  - Personnel records and benefits
  - Subcontractor monitoring and management
  - Material estimating
  - Space layout

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- Target niches for IS in the hotel/motel/lodging market are:
  - Convention/event management
  - Bed 'n Breakfast facilities
  - "European" style hotels

- Non-profit organizations could use software to help:
  - Operate the "for profit" portions of their business
  - Manage association publications
  - Manage seminars
  - Provide better records for fundraising
  - Manage local political campaigns

- Within the sports/recreation segment, consider:
  - Theme park management
  - Management of musicals, and plays by local music and theatre groups (which may, coincidentally, be set up as non-profit organizations)

In order to initially penetrate areas where IS purchases have been small, a great deal of hand-holding will be necessary. When pricing the product or service, vendors should take into account increased customer support costs.

Since there are virtually no "powerhouse" applications software suppliers, a larger firm with strong marketing, sales, and sales support muscle could make significant inroads in one or more diverse market segments.

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A

Appendix: Forecast Data Base: "Other Industry" Sector

A

Appendix: Forecast Data Base; "Other Industry" Sector

Forecast Reconciliation

Since there were no major differences between previous INPUT forecasts and 1986 results, no reconciliation is necessary.

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About INPUT

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions. Continuing services are provided to users and vendors of computers, and communications and office products and services.

The company carries out continuous and in-depth research. Working closely with clients on important issues, INPUT's staff members analyze and interpret the research data, then develop recommendations and innovative ideas to meet clients' needs. Clients receive reports, presentations, access to data on which analyses are based, and continuous consulting.

Many of INPUT's professional staff members have nearly 20 years of experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed in 1974, INPUT has become a leading international planning services firm. Clients include over 100 of the world's largest and most technially advanced companies.

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